Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East • Tacoma, WA 98424
(253) 922-2310 • FAX (253) 922-5047
e-mail: sainc1@uswest.net

TRANSMITTAL MEMORANDUM

Green stained soils
Area 2

DATE: August 20, 1999

TO: Jim Bonter
Olympus Environmental, Inc.
P.O. Box 1064
Kent, WA 98035

PROJECT: 8633 KCIA

REPORT NUMBER: 83397

Enclosed are the test results for one sample received at Sound Analytical Services on August 16, 1999.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Tom Boyden
Project Manager

KCSlip4 36128

SOUND ANALYTICAL SERVICES, INC.

Client Name	Olympus Environmental, Inc.
Project Name	8633 KCIA
Date Received	08-16-99

General Chemistry Parameters

	Client Sample ID		KC1A-8633		
	Lab ID		83397-01		
Parameter	**Method**	**Date Analyzed**	**Units**	**Result**	**PQL**
Flash Point	EPA 1020	08-16-99	°F	> 200	N/A
Total Halogens (TX)	EPA 9076	08-17-99	mg/kg	ND	9.7

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SOUND ANALYTICAL SERVICES INC.

Client Name	Olympus Environmental, Inc.
Project Name	8633 KCIA
Date Received	08-16-99

Sample Preparation Information for Toxicity Characteristic Leaching Procedure (TCLP) EPA Method 1311

Client Sample ID	KC1A-8633
Lab ID	83397-01

% Solids:	100
No. of Extractions:	1
Type of Extraction(s):	rotary
Extraction Fluid:	#1
Date Filtered:	08-17-99

SOUND ANALYTICAL SERVICES, INC.

Client Name	Olympus Environmental, Inc.
Client ID:	KC1A-8633
Lab ID:	83397-01
Date Received:	8/16/99
Date Prepared:	8/17/99
Date Analyzed:	8/18/99
Dilution Factor	1

TCLP Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	PQL	Flags
Arsenic	ND	0.2	
Barium	1.6	0.005	
Cadmium	ND	0.02	
Chromium	0.18	0.01	
Lead	0.79	0.05	
Selenium	ND	0.4	
Silver	0.015	0.012	

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SOUND ANALYTICAL SERVICES, INC.

Client Name	Olympus Environmental, Inc.
Client ID:	KC1A-8633
Lab ID:	83397-01
Date Received:	8/16/99
Date Prepared:	8/18/99
Date Analyzed:	8/18/99
Dilution Factor	1

TCLP Mercury by CVAA - USEPA Method 7470

Analyte	Result (mg/L)	PQL	Flags
Mercury	ND	0.002	

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SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - L189B
Date Received:	-
Date Prepared:	8/17/99
Date Analyzed:	8/18/99
Dilution Factor	1

TCLP Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	PQL	Flags
Arsenic	ND	0.2	
Barium	ND	0.005	
Cadmium	ND	0.02	
Chromium	ND	0.01	
Copper	ND	0.02	
Lead	ND	0.05	
Nickel	ND	0.04	
Selenium	ND	0.4	
Silver	0.011	0.01	
Zinc	ND	0.02	

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SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	L189B
Date Prepared:	8/17/99
Date Analyzed:	8/18/99
QC Batch ID:	L189B

Metals by ICP - USEPA Method 6010

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	BSD Result (mg/L)	BSD % Rec.	RPD	Flag
Barium	0	1	0.986	98.6	0.986	98.6	0	

7

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SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID:	99-12779
Lab ID:	83181-21
Date Prepared:	8/17/99
Date Analyzed:	8/18/99
QC Batch ID:	L189B

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Arsenic	0	5	5.83	117	
Barium	3.7	1	4.95	127	X7
Cadmium	0	1	0.979	98	
Chromium	0.054	5	5.03	100	
Lead	0.054	5	4.66	92	
Selenium	0	1	1.17	117	
Silver	0	5	5.04	101	

8

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SEA402680

Duplicate Report

Client Sample ID:	99-12779
Lab ID:	83181-21
Date Prepared:	8/17/99
Date Analyzed:	8/18/99
QC Batch ID:	L189B

Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Arsenic	0	0	NC	
Barium	3.7	3.7	0.0	
Cadmium	0	0	NC	
Chromium	0.054	0.043	23.0	X4a
Copper	4.8	4.8	0.0	
Lead	0.054	0.051	5.7	
Nickel	0	0	NC	
Selenium	0	0	NC	
Silver	0	0	NC	
Zinc	53	52	1.9	

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SOUND ANALYTICAL SERVICES INC.

Lab ID:	Method Blank - L189B
Date Received:	-
Date Prepared:	8/18/99
Date Analyzed:	8/18/99
Dilution Factor	1

TCLP Mercury by CVAA - USEPA Method 7470

Analyte	Result (mg/L)	PQL	Flags
Mercury	ND	0.002	

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SOUND ANALYTICAL SERVICES INC.

Matrix Spike Report

Client Sample ID:	99-12779
Lab ID:	83181-21
Date Prepared:	8/18/99
Date Analyzed:	8/18/99
QC Batch ID:	L189B

Mercury by CVAA - USEPA Method 7470

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Mercury	0	0.02	0.0256	128	

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SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	99-12779
Lab ID:	83181-21
Date Prepared:	8/18/99
Date Analyzed:	8/18/99
QC Batch ID:	L189B

Mercury by CVAA - USEPA Method 7470

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Mercury	0	0	NC	

12

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SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

Client Sample ID: KC1A-8633
Lab ID: 83397-01
QC Batch Number: TX679

Method Blank

Parameter	Result (mg/kg)	PQL
Total Halogens (TX)	ND	10

Duplicate

Parameter	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD (%)	Flag
Total Halogens (TX)	ND	ND	NC	

SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE: (253) 922-2310 - FAX: (253) 922-5047

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq 40\%$.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be $> 40\%$. The higher result was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

N: See analytical narrative.

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____ .

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

8 3397

OLYMPUS ENVIRONMENTAL, INC.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
KCIA	Seattle
Work Order No. 8633	Field Logbook No.
Sampler: (Signature) Jim B	Chain of Custody Tape No.

ANALYSES: RCRA 8 Arsenic (?), TCLP 8 ... Hg, Ignitability / Flash Point, TOX

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	RCRA 8 / TCLP	Ignitability / Flash Point	TOX							
KCIA-8633	8/13/99	1000		GRAB	X	X	X							

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jim B	8/16/99		Joe Palmer SAS	8-16-99	12:30
Joe Palmer	8-16-99	1:00 P	M Hartman	8/16/99	1:20

Comments: FAX Results to Attn: Jim Baker @ 253-395-1120

9/2

ANALYTICAL LABORATORY: 24 HR TAT

KCSlip4 36142

SEA402687